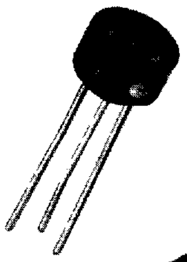
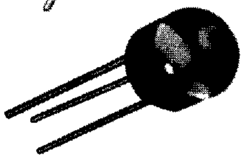
SIEMENS

LPT100/100A/100B
LPT110/110A/110B
PHOTOTRANSISTOR

T-41-61

LPT110

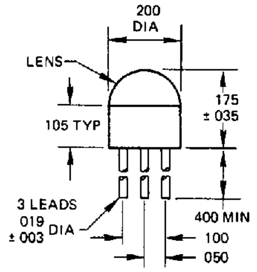




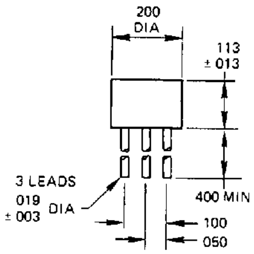
LPT100

Package Dimensions in Inches

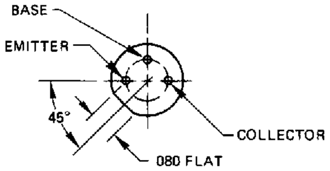
LPT100/A/B



LPT110/A/B



LPT100/A/B and LPT110/A/B



Notes
1. All leads electrically isolated from case
2. Flatness variation of top of cup is ±.015
3. Photosensitive area is a 030 diameter circle within the center of the package.

FEATURES

- **Collector Dark Current 0.25 nA Typ.**
- **Responsivity**
  0.6 µA/mW/cm² Min (Tungsten)
  1.8 µA/mW/cm² Min (GaAs)
- **Photo Current**
  0.2 mA Min (Tungsten)
  0.6 mA Min (GaAs)
- **Rise and Fall Time 2.8 µs Typ**
- **Applications**
  Position Detector, Intrusion Alarm Sensor, Optical Tachometer

Maximum Ratings

Maximum Temperature/Humidity	
Storage Temperature	-55°C to +100°C
Operating Junction Temperature	-55°C to +85°C
Relative Humidity at Temperature	98% at +65°C
Maximum Power Dissipation (1 2)	
Total Dissipation at +25°C	
Case Temperature	200 mW
Total Dissipation at +25°C	
Ambient Temperature	100 mW
Maximum Voltages (5)	
BV_{CBO} Collector to Base Voltage	50 V
LV_{CEO} Collector to Emitter Sustaining Voltage	30 V
Maximum Current	
I_C Collector Current	100 mA

Notes
1 These are steady state limits The factory should be consulted on applications involving pulsed or low duty cycle operations
2 These ratings give a maximum junction temperature of +85°C and junction to case thermal resistance of +300°C/W (derating factor of 3 33 mW/°C) and a junction to ambient thermal resistance of +600°C/W (derating factor of 1 67 mW/°C)
3 Measured with radiation flux intensity of less than 0 1 µW/cm² over the spectrum from 100 to 1500 nm
4 Measured at noted irradiance as emitted from a tungsten filament lamp at a color temperature of 2854° K
5 No electrical connection to emitter lead
6. Measured with a tungsten lamp (2854° K) with a 950 nm filter
7 No electrical connection to base lead
8 Rise time is defined as the time required for I_{CE} to rise from 10% to 90% peak value Fall time is defined as the time required for I_{CE} to decrease from 90% to 10% of peak value Test conditions are I_{CE}=4 0 mA, V_{CE}=5 0 V, R_L=100 Ohms, GaAs Source

Characteristics (T_{amb}=25°C)

		Min.	Typ.	Max.	
Collector Dark Current (3)					
(V_{CB}=10 V)	I_{CBO}		0.25	25	nA
Collector Dark Current (3)					
(65°C) (V_{CB}=10 V)	I_{CBO}		0 025	0 5	µA
Collector Dark Current (3)					
(V_{CE}=5 0 V)	I_{CEO}		2.0	100	nA
Responsivity (Tungsten) (4, 5)					
(V_{CB}=10 V)	R_{CB}				µA/mW/cm²
LPT100/A/B		0 6	1 6		
LPT110/A/B		0 6	1 0		
Responsivity (GaAs) (5 6)					
(V_{CB}=10 V)	R_{CB}				µA/mW/cm²
LPT100/A/B		1 8	4 8		
LPT110/A/B		1.8	3 0		
Photocurrent (Tungsten) (4 7)					
(V_{CE}=5 0 V, H=5.0 mW/cm²)	$I_{CE(L)}$				mA
LPT100		0 2	1 4		
LPT110		0 2	2 1		
LPT100A		1.0	2 0	3 0	
LPT110A		0 6	1 2	1 8	
LPT100B		1 3	2.0	2 6	
LPT110B		0 8	1.2	1 6	
Photocurrent (GaAs) (6, 7)					
(V_{CE}=5 0 V, H=5 0 mW/cm²)	$I_{CE(L)}$				mA
LPT100/A/B		0 6	4.2		
LPT110/A/B		0 6	2 7		
Light Current Rise Time (8)	t_R, t_F		2 8		µs
Collector to Emitter (4)					
Saturation Voltage					
(I_C=500 µA, H=20 mW/Cm²)	$V_{CE(SAT)}$		0 16	0 4	
Collector to Base Breakdown (3)					
Voltage (I_C=100 µA)		50	120		V
Collector to Emitter (3)					
Sustaining Voltage (I_C=1 0 mA)	LV_{CEO}	30	50		V
Emitter to Collector (3)					
Breakdown (I_{EC}=100 µA)	BV_{ECO}		7.0		V

TYPICAL OPTOELECTRONIC CHARACTERISTICS

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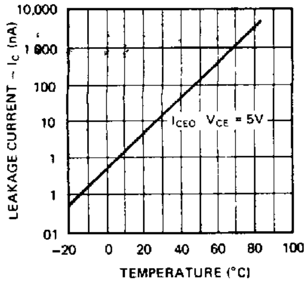
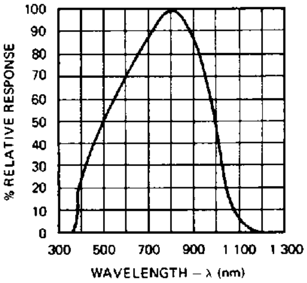
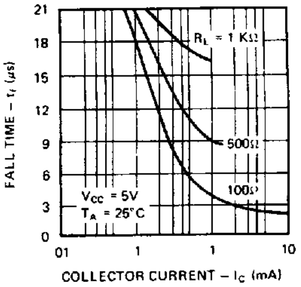
COLLECTOR DARK CURRENT VS TEMPERATURE



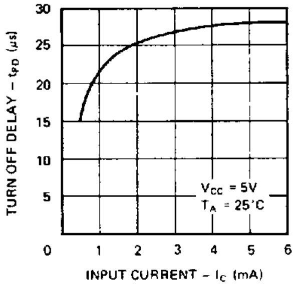
SPECTRAL CHARACTERISTICS



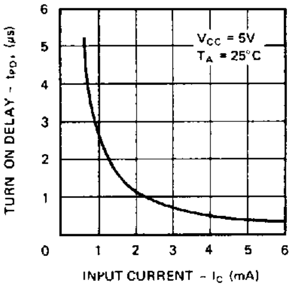
RISE AND FALL TIME VS COLLECTOR CURRENT



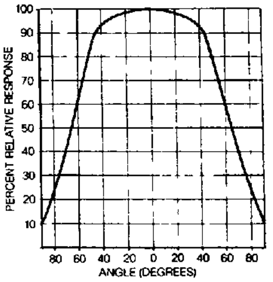
TURN-OFF DELAY TIMES FOR CURRENT



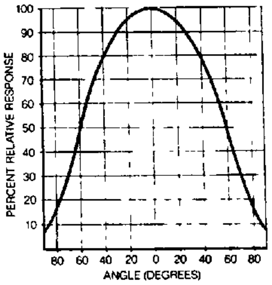
TURN-ON DELAY TIMES FOR CURRENT



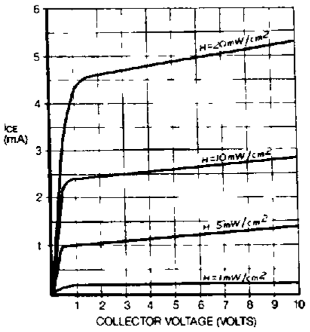
ANGULAR RESPONSE (LPT100 A/B)



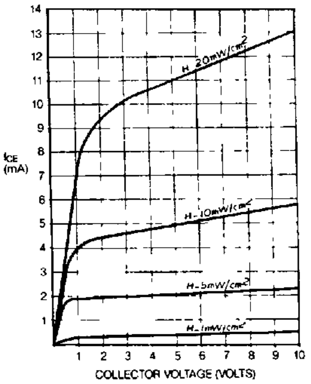
ANGULAR RESPONSE (LPT110 A/B)



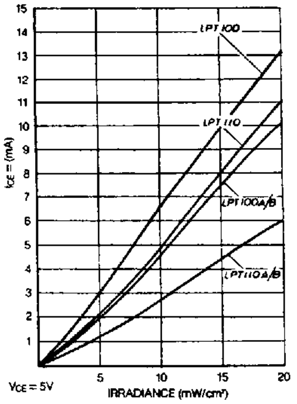
I_{CE} versus V_{CC} (LPT110 A/B)



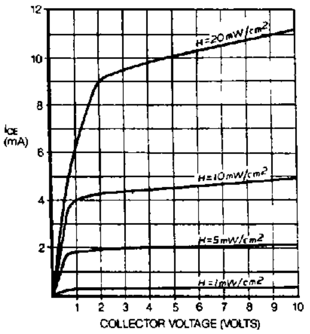
I_{CE} versus V_{CC} (LPT110)



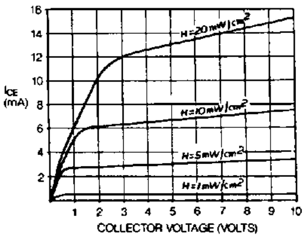
I_{CE} versus IRRADIANCE



I_{CE} versus V_{CC} (LPT100 A/B)



I_{CE} versus V_{CC} (LPT100)



BASE CURRENT versus IRRADIANCE